

Essential Learnings	
8th to 12th grades	Math Department
Geometry	Date: May 22, 2009
<b>Essential Learning:</b> To engage in the mathematical process the student will:	<b>Indicators for Success</b>
Draw, label, identify, and measure basic geometric shapes such as points, lines, planes, angles and segments.	<ul style="list-style-type: none"> <li>•use a protractor, ruler and compass to draw and measure figures</li> <li>•describe the relationships between basic figures</li> </ul>
Think logically using inductive, deductive and indirect reasoning.	<ul style="list-style-type: none"> <li>•describe a pattern,</li> <li>•write conditionals, converses, biconditionals and determine truth values,</li> <li>•form conclusions using valid forms of deductive reasoning,</li> <li>*to write formal proofs using one of three (flow, paragraph, or 2-column) styles</li> </ul>
Describe the relationships between parallel, perpendicular, and intersecting lines and the angles they form.	<ul style="list-style-type: none"> <li>•classify pairs of angles as congruent or supplementary based on diagrams, theorems (CAP, AIA,SSI),</li> <li>•use slopes to determine if lines are parallel or perpendicular,</li> <li>•illustrate the properties of multiple parallel and/or perpendicular lines</li> </ul>
Draw, mark and write congruence statements for polygons and triangles.	<ul style="list-style-type: none"> <li>•use one of 5 methods (SSS,SAS,ASA,AAS, HL) to prove two triangles are congruent,</li> <li>•to draw and construct triangle bases on the 5 methods,</li> <li>•to draw conclusion from pairs of congruent triangles</li> </ul>

<p>Discover the relationships and properties within triangles.</p>	<ul style="list-style-type: none"> <li>•use the Triangle Sum Theorem to find and measures,</li> <li>•use the symmetry of isosceles triangles to find lengths and angle measures,</li> <li>•locate 4 points of concurrency,</li> <li>•write inequalities based on triangles,</li> <li>•relate types of triangles using a hierarchy</li> </ul>
<p>Use the properties of the 7 types of quadrilaterals to classify and relate them to each other.</p>	<ul style="list-style-type: none"> <li>•develop the quadrilateral hierarchy,</li> <li>•verify properties using coordinate proof, •derive formulas to find the area of each type of quadrilateral.</li> </ul>